

19



Europäisches Patentamt
European Patent Office
Office européen des brevets



11 Publication number:

0 335 743 A3

12

EUROPEAN PATENT APPLICATION

21 Application number: **89303221.9**

51 Int. Cl.⁵: **G05D 23/19, G05B 15/00,
F24F 11/00**

22 Date of filing: **31.03.89**

30 Priority: **31.03.88 US 175865**

43 Date of publication of application:
04.10.89 Bulletin 89/40

84 Designated Contracting States:
CH DE GB LI SE

88 Date of deferred publication of the search report:
06.03.91 Bulletin 91/10

71 Applicant: **BARBER-COLMAN COMPANY**
555 Colman Center Drive P.O. Box 7040
Rockford, IL 61125(US)

72 Inventor: **Sebald, Mark D.**
6268 Durness
Caledonia Illinois(US)
Inventor: **Neumeyer, Richard E.**
6110 Abraham Drive
Rockford Illinois(US)

74 Representative: **White, Martin David et al**
MARKS & CLERK 57/60 Lincoln's Inn Fields
London WC2A 3LS(GB)

54 **Improved versatile interface means for computer-based control systems.**

57 A computer (20) implemented control system which includes interface circuitry (21) by which signal intelligence is taken in to the computer from external devices such as sensors (70, 80b) and is fed out from the computer to external devices (61, 65) such as actuators which correctively adjust controlled parameters. An interface circuit (21) for each of the several external devices is made "universal" in that either an analog input (70), bistate input (80b), analog output (61), or bistate output (65) device may be connected to any given one of the terminal points (TP0-TP15). A voltage follower amplifier (50) sends the intelligence signal to an output device (61, 65) through a low-cost diode (51), with negative feedback taken from the downstream side of the diode (51). When an input device (70, 80b) is elected for a given terminal point, simple program editing assures that the diode (51) will be reverse biased to isolate the amplifier (50) from the input signal path. In addition, inaccuracies in the analog output voltage fed to an output device (61, 65) -- arising from contact resistances in a separable connector (90) -- are drastically reduced by a dual-path separable connector (90) arrangement which provides two independent circuit connections (100, 101) for the output voltage and for negative feedback.

EP 0 335 743 A3



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 074 868 (LA TELEMECANIQUE ELECTRIQUE) * page 7, lines 9 - 23; figures 6, 7 * - - - -	1-4	G 05 D 23/19 G 05 B 15/00 F 24 F 11/00
A	US-A-4 456 166 (KAGOHATA) * column 1, line 54 - column 2, line 36; figure 2 * - - - -	1-4	
A	US-A-4 410 855 (UNDERHILL ET AL.) * the whole document * - - - -	1-4	
A	INSTRUMENTS AND CONTROL SYSTEMS. vol. 54, no. 1, January 1981, RADNOR US pages 57 - 59; Daniel Abenaim: "DAS advances still call for good design" * the whole document * - - - -	1-4	
A	ELEKTROTECHNIK. vol. 68, no. 11, June 1986, WURZ- BURG DE pages 16 - 21; Hans-Heino Decker: "SPS auto- matisiert Ofenbetrieb" * the whole document * - - - - -	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 05 D G 05 B F 24 F
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		08 January 91	SCHOBERT D.A.V.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</p> <p>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons</p> <p>..... &: member of the same patent family, corresponding document</p>			